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(19) **United States**(12) **Patent Application Publication**  
**Onodera**(10) **Pub. No.: US 2003/0006958 A1**(43) **Pub. Date: Jan. 9, 2003**(54) **HAPTIC-SENSE-GENERATION INPUT  
DEVICE THAT IS REDUCED IN SIZE BY A  
GEAR MECHANISM****Publication Classification**(51) **Int. Cl.<sup>7</sup> ..... G09G 5/00**(52) **U.S. Cl. .... 345/156**(75) **Inventor: Mikio Onodera, Miyagi-ken (JP)****Correspondence Address:**  
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**Chicago, IL 60610 (US)**(57) **ABSTRACT**(73) **Assignee: Alps Electric Co., Ltd.**(21) **Appl. No.: 10/188,376**(22) **Filed: Jul. 2, 2002**(30) **Foreign Application Priority Data**

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A haptic-sense-generation input device is provided with a manipulation knob, a shaft that holds the manipulation knob and is held rotatably by a bearing, a motor having a motor shaft that is parallel with the shaft, a rotation detecting unit for detecting a rotation angle of the manipulation knob, a first gear that is attached to the shaft so as to be rotated by the manipulation knob, and a second gear that is attached to the motor shaft and is rotated by the first gear. A haptic sense that is generated by the motor is transmitted to the manipulation knob via the first gear and the second gear.

